Caltrans

LAGUNITAS CREEK BRIDGE PROJECT
PUBLIC MEETING
MAY 10, 2017

PUBLIC MEETING AGENDA

- Presentation
  1. What is CEQA/NEPA?
  2. Project Need/ Existing Conditions
  3. Reasonable Range of Alternatives
  4. Environmental Evaluation Results
  5. Next Steps
- Public comment
- As time allows, return to reviewing information at stations around the room

Please provide your input on the provided comment cards and hand them to the Welcome Desk!

WHAT IS NEPA AND CEQA?

NEPA AND CEQA

- Pursuant to
  - California Environmental Quality Act (CEQA)
  - National Environmental Policy Act (NEPA)
- Caltrans has prepared the Draft EIR/EA
- And including the public input into the environmental review

PROJECT PURPOSE AND NEED

EXISTING CONDITION - BRIDGE

- 152 ft. long, 3-span structure
  - *Two 26 ft. reinforced concrete approach spans*
  - *100 ft. long riveted steel pony truss center span*
- 11’ lanes, no shoulders, 4' sidewalk on the west side

EXISTING CONTEXT AT THE BRIDGE

- High traffic volume
- Limited right-of-way
- Environmentally sensitive location (narrow work windows)
- Users include delivery and passenger vehicles, bus, pedestrians, recreationalists and equestrians

PROJECT PURPOSE

...is to provide a safe, seismically-stable crossing over Lagunitas Creek on Route 1

PROJECT NEED: THE BRIDGE

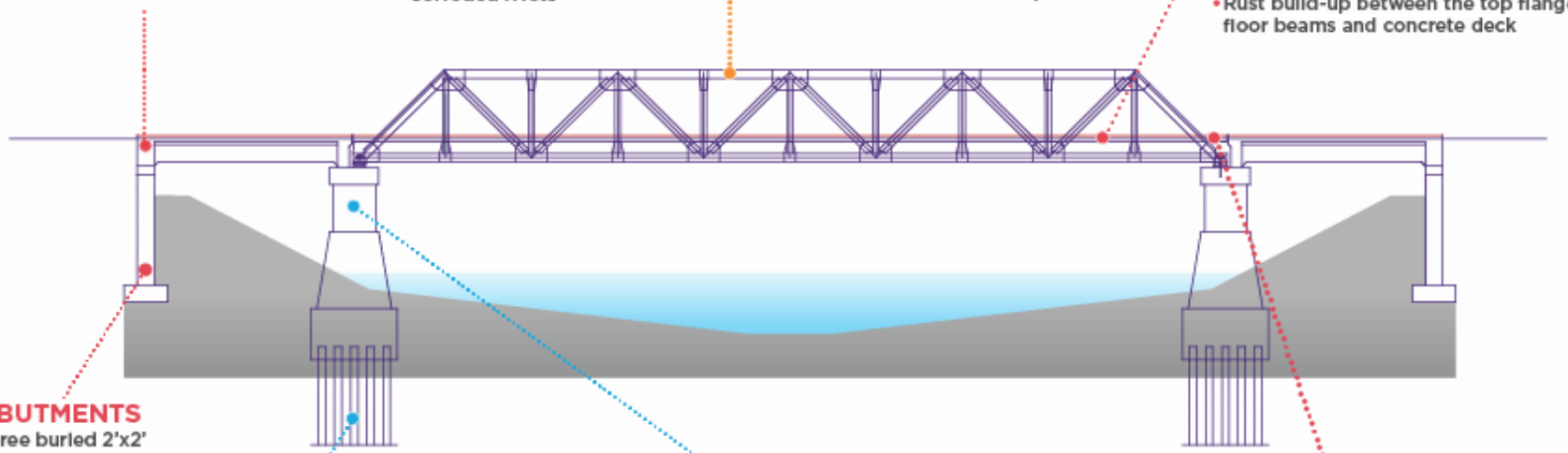
- Is a vital connection to the Pt. Reyes community and beyond and this connection must be maintained
- Does not meet current safety and seismic standards
- Is showing signs of incremental wear and deterioration

PROJECT NEED

The bridge is 88 years old & wearing out

- Rusting of steel – loss of section
- Deteriorating (spalling) concrete
- Suspected steel fatigue
- No structural redundancy
- 1929 design standards

REVIEW DEFICIENCIES



T-BEAMS SPANS
- Under-reinforced girders
- Outdated railing
- Under-reinforced end diaphragms

STEEL PONY TRUSS
- Observed corrosion between gusset plates, channel flanges, and truss member plates
- Corroded rivets
- Possible steel fatigue damage from years of repetitive traffic loading
- Existing bridge railing does not protect truss members from traffic impact

DECK SLAB
- Cracks in concrete deck may be allowing water through to steel floor beams
- Rust build-up between the top flanges of the floor beams and concrete deck

ABUTMENTS
- Three buried 2'x2' under-reinforced columns supported on 5'x5' spread footings

PIER PILINGS
- Unkown depth, type and load capacity

PIERS
- No steel reinforcement within concrete mass
- Piers' position constrain flow of debris during high flows

ROADWAY
- Inadequate site distance
- Roadway must narrow sharply to meet bridge width
- Inconsistent shoulders between roadway and bridge deck

OTHER IDENTIFIED ISSUES WITH BRIDGE: TRAFFIC, PEDESTRIAN AND BIKE SAFETY

- Missing protective railing
- Narrow culvert prevents pedestrians to walk along shoulder
- Narrow bridge
- Inadequate Safe Route to School
- Difficulty turning from Sir Francis Drake Blvd to SR 1

PUBLIC INPUT: KEY MESSAGES

1. Construction duration: 2 to 3 seasons is too long.
2. Right-of-Way impacts: Minimize project impacts on adjacent property owners and access to/from Pt Reyes Station
3. Minimize environmental impacts to wetland and riparian habitats
4. Aesthetics: Maintain the current character (color and scale)
5. Safety: Pedestrians, bicycles and traffic safety
6. Lagunitas Creek: Maintain/ improve water flows and plan for sea level rise

RANGE OF ALTERNATIVES

ALTERNATIVES ANALYSIS PROCESS

1. Develop a full range of alternatives
2. Gather community input
3. Develop criteria
4. Gather comparative data on the range of alternatives
5. Screen those that are not prudent and/or feasible

PROJECT DESIGN CRITERIA

1. Meet current seismic standards
2. Provide useful cross section for vehicular, bicycle & pedestrian needs
3. Meet current design criteria (live, dead and wind loads)
4. Minimize environmental impacts (both community and natural environments)
5. Maintain two-way traffic flow – especially during weekend periods of high traffic volumes

THE RANGE OF ALTERNATIVES

Full Range of Alternatives:

- No Build Alternative (no action, baseline)
- Build Alternatives
  - Bridge types: steel-truss three-span, full-span steel-truss, pre-cast concrete girder, suspension
  - Construction method: Conventional Construction and Accelerated Bridge Construction
- Retrofit Alternative

COMMON DESIGN ELEMENTS FOR ALL ALTERNATIVES

- Cross walk at Sir Francis Drake'
- Provide continuous shoulder
- Safer turning movements

None of the Alternatives:

Raise bridge to accommodate floodplain

4 ALTERNATIVE BRIDGE TYPES

1. Steel-Truss: 3-span

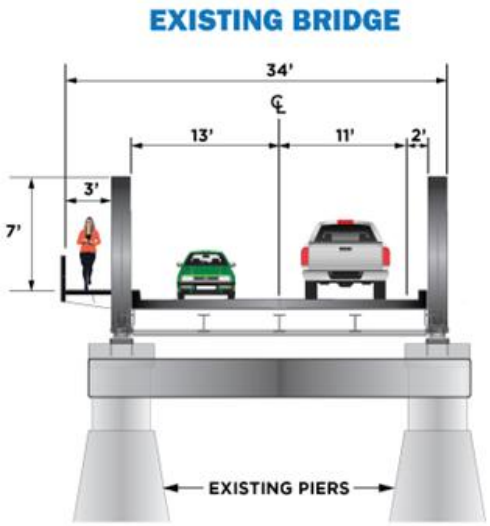
2. Steel-Truss: Full-span

3. Concrete Bridge: 3-span

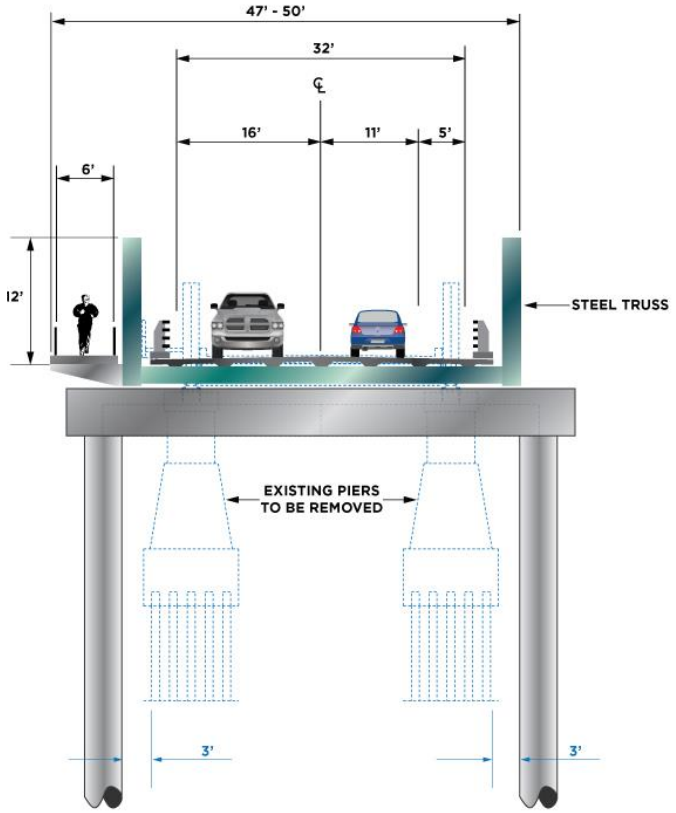
4. Suspension Cable

STEEL TRUSS: THREE-SPAN

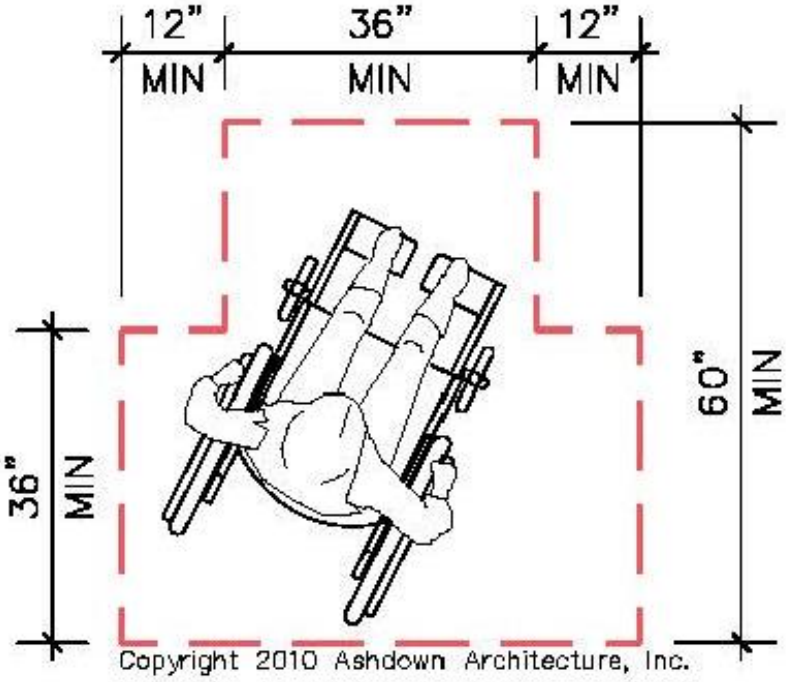
STEEL TRUSS: THREE-SPAN (CROSS SECTION)

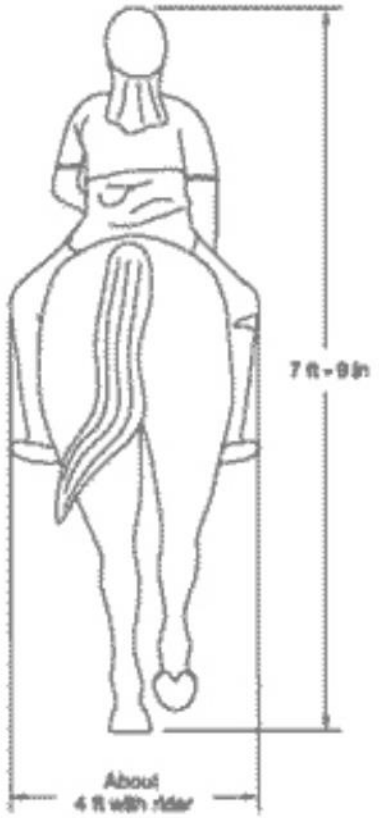


THREE SPAN TRUSS BRIDGE
TWO CANTILEVERED SIDEWALKS



IMPORTANT DIMENSIONS





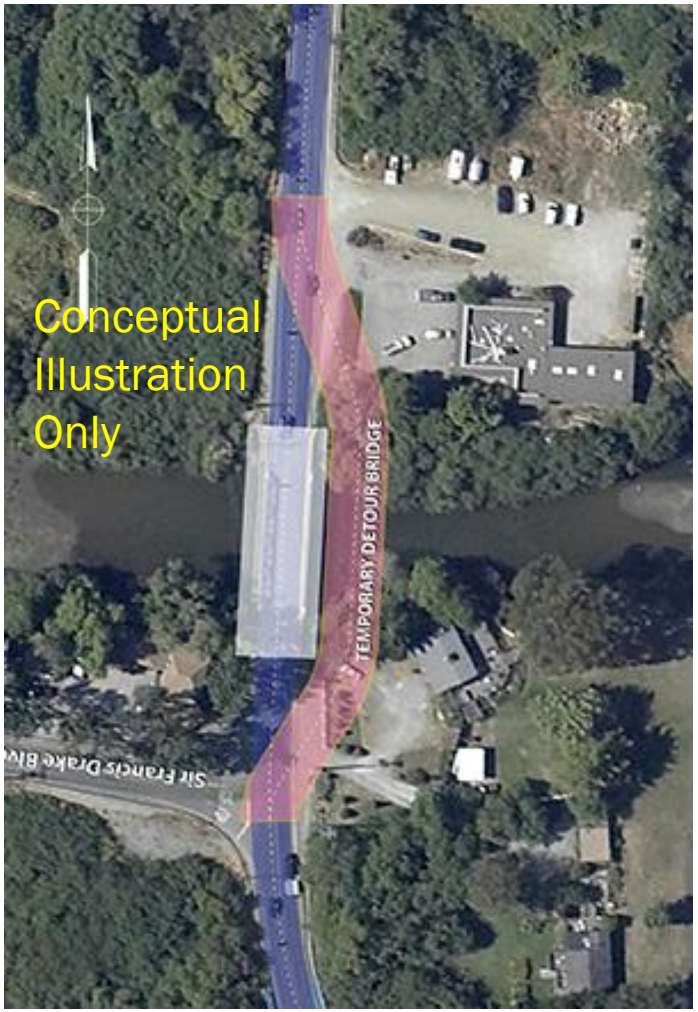
Horse With Rider

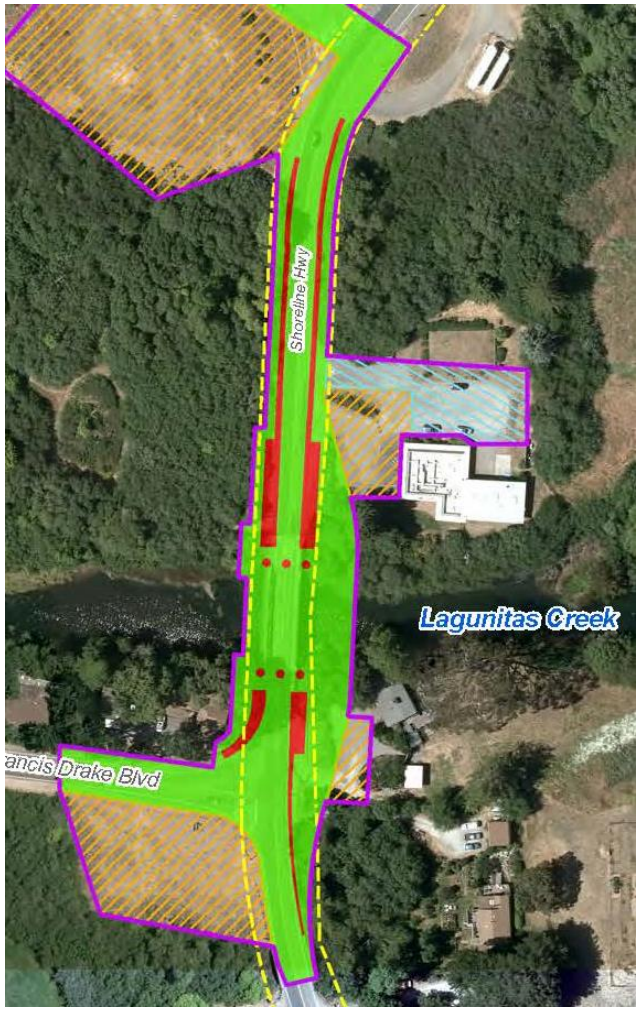
Source: Americans with Disabilities Act of 1990 (ADA) (28 CFR Part 36 Public Accommodations, U.S. Dept. of Justice Civil Rights Division, Standards for Accessible Design (webpage, 2016)

CONVENTIONAL CONSTRUCTION

1. Phase 1: Year 1
   - Mobilize team and stage equipment
   - Build temporary two-lane bridge between June – Sept
2. Phase 2: Year 2
   - Tear out old bridge within June – Sept
   - Order materials and prepare pre-cast pieces
3. Phase 3: Year 3
   - Build new bridge within June – Sept.
   - Remove temporary bridge detour and replace utilities and replanting details

CONVENTIONAL – DETOUR BRIDGE

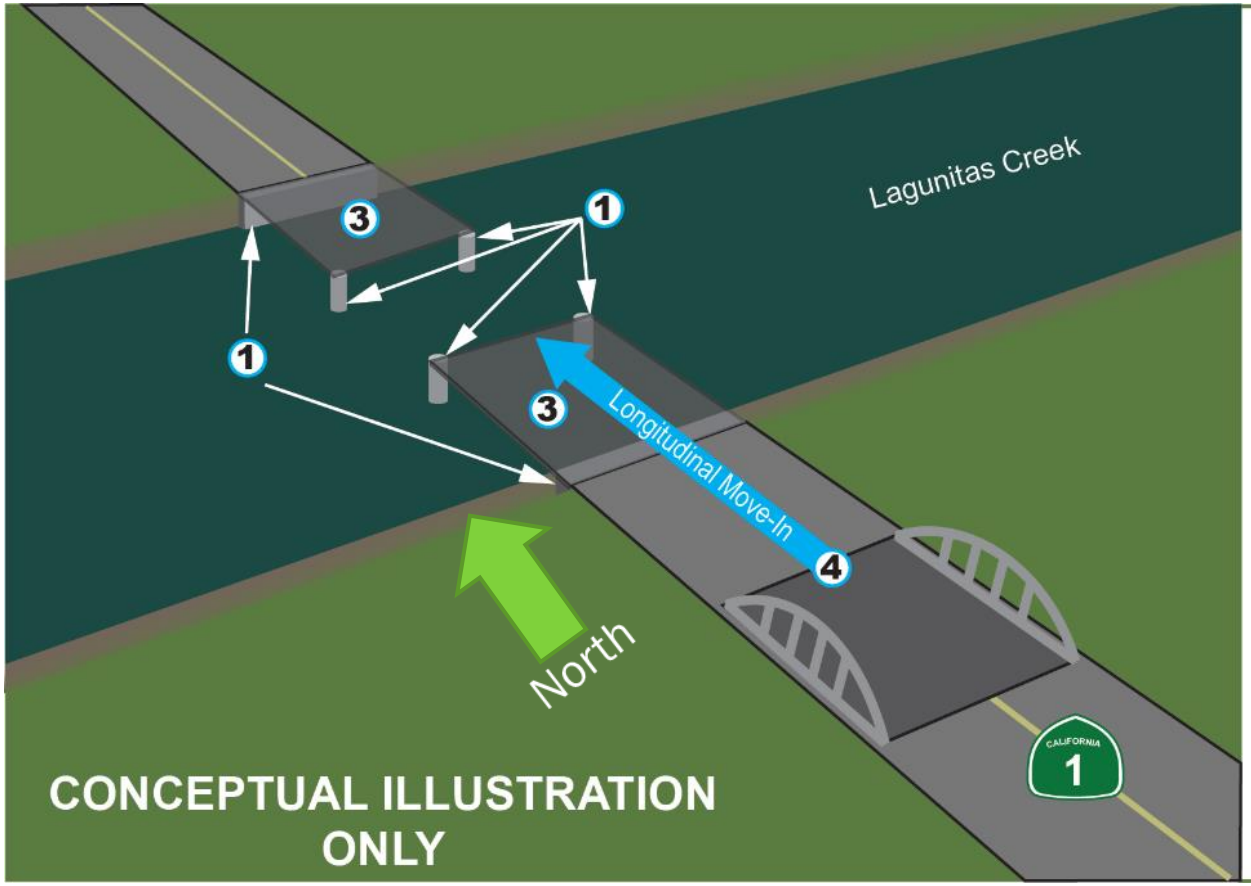




ACCELERATED BRIDGE CONSTRUCTION (ABC)

- Phase 1: Advanced preparation (Late winter/ Early Spring)
  - Acquire permits, mobilize
  - Develop and gather all pre-cast and pre-assembled components within nearby staging areas
  - Build abutments outside of waterway
- Phase 2: June – Sept
  - Install support structures (piers and girders)
  - Close roadway to remove existing bridge and install truss & deck
- Phase 3: Final details (Fall/ Winter)
  - Replace utilities, aesthetic finishes, and replanting, etc.

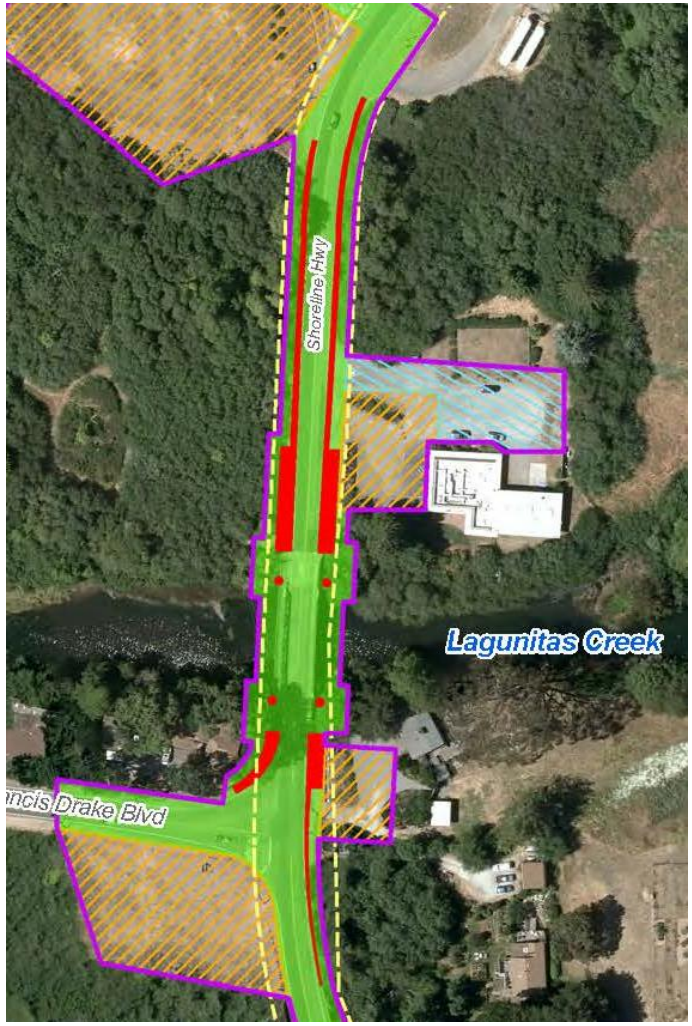
ABC – LONGITUDINAL MOVE-IN



Three-span Concrete (or Steel-Truss) Bridge Construction

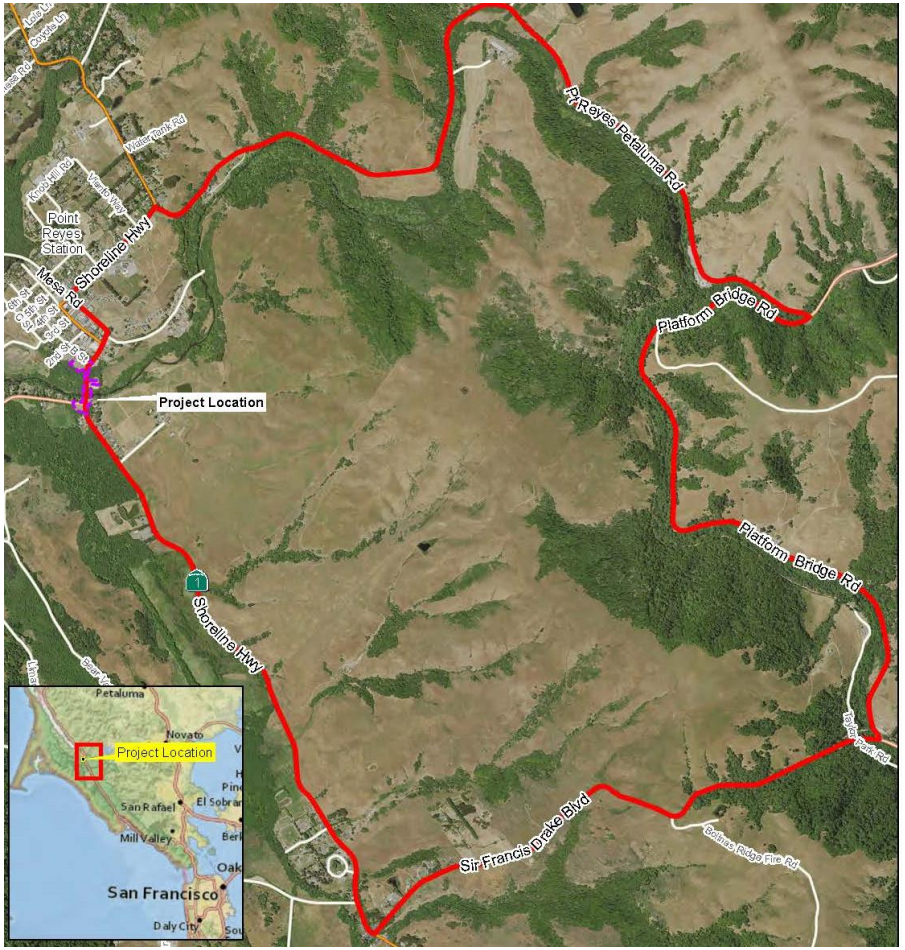
1. Install piers and abutments
2. Remove existing bridge (not pictured)
3. Attach precast concrete "T" span from either side
4. Longitudinally move in center span (concrete or center steel truss)

ABC – LONGITUDINAL MOVE-IN CONSTRUCTION FOOTPRINT



ABC – DETOUR ROUTE FOR 2-3 WEEKS

- Emergency service personnel on both sides
- Shuttles
- Advanced notification to delivery services
- Postings on social media and web
- Target low tourist season



CONCRETE BRIDGE

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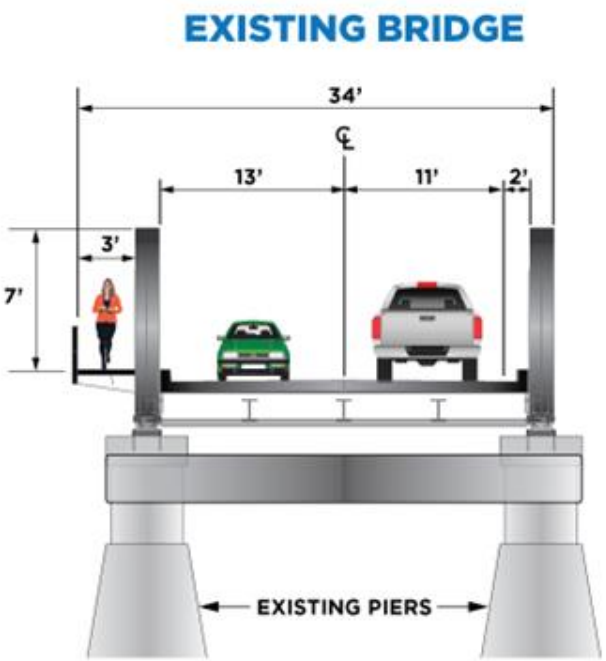
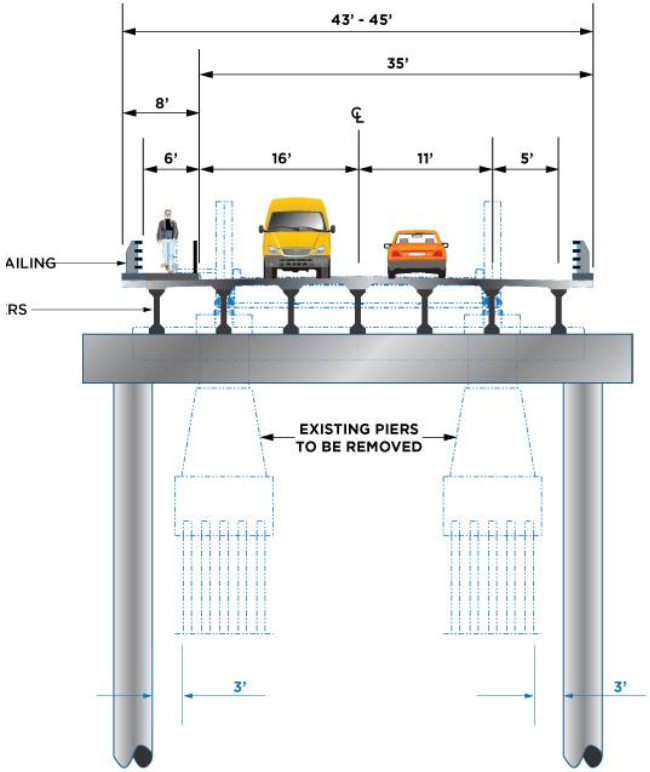
CONCRETE BRIDGE: THREE-SPAN (CROSS SECTION)





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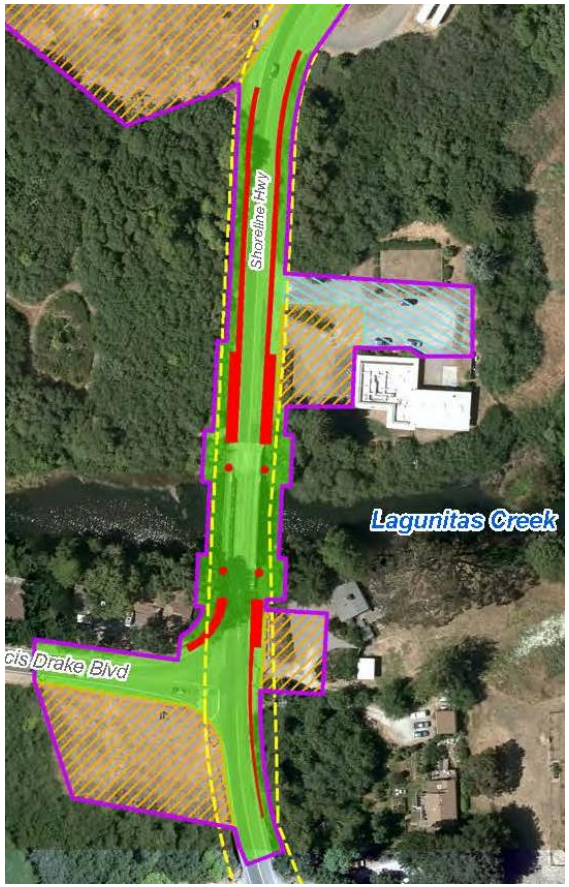

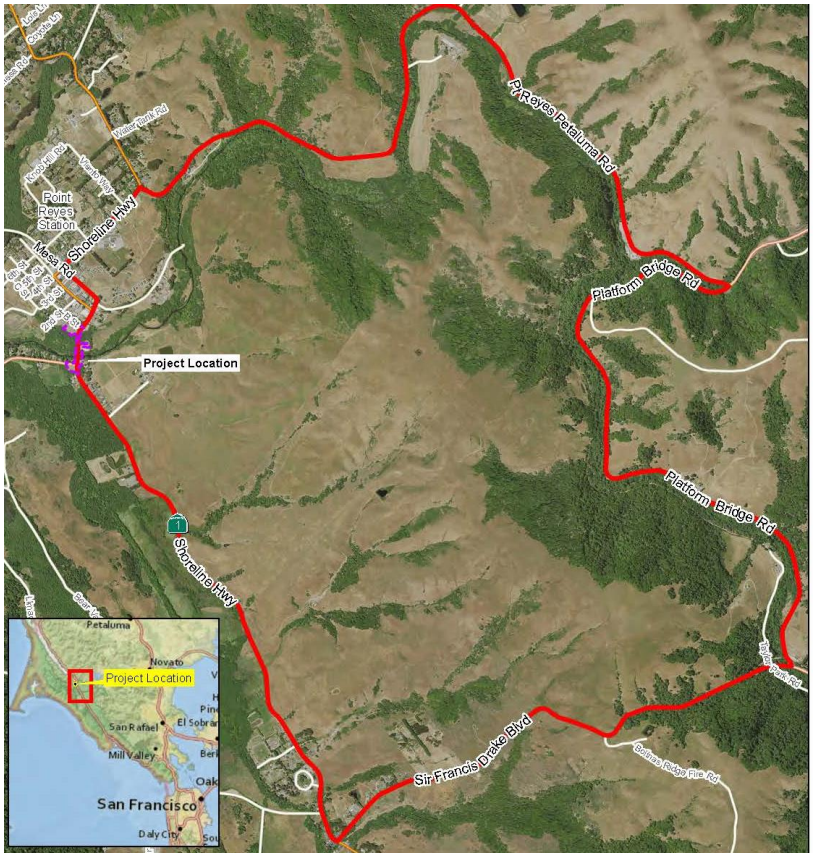

Same footprint as Steel Truss Bridge with ABC - Longitudinal Move-in

STEEL TRUSS: FULL-SPAN

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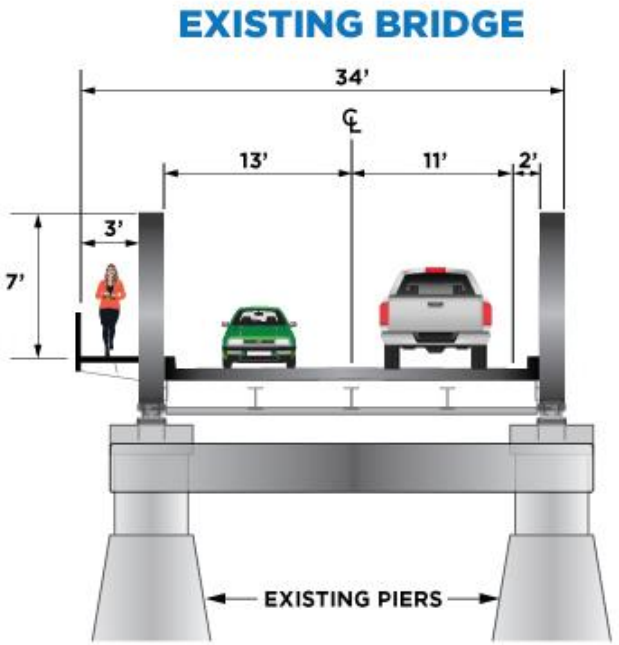
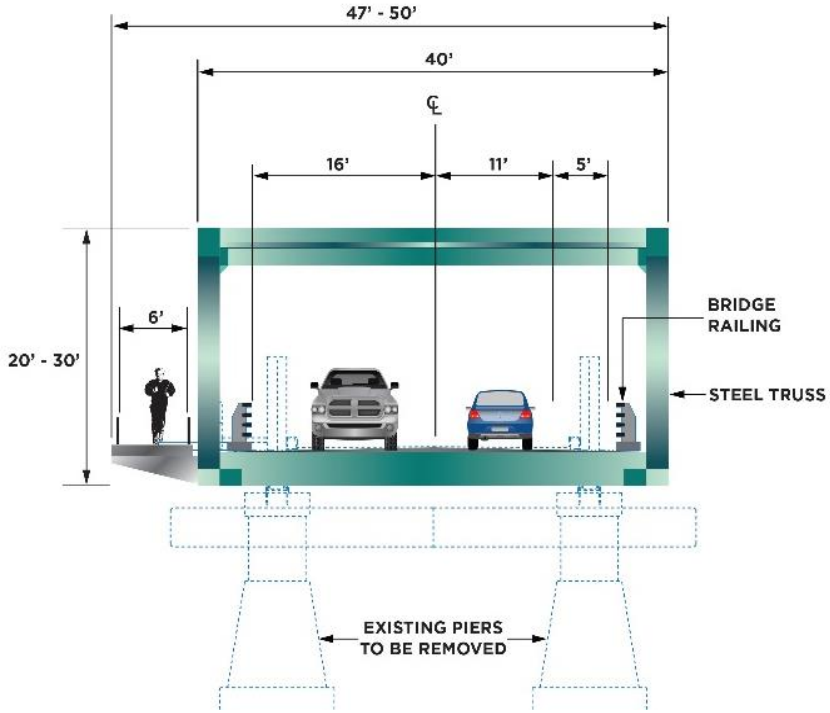
FULL-SPAN STEEL TRUSS (CROSS SECTION)





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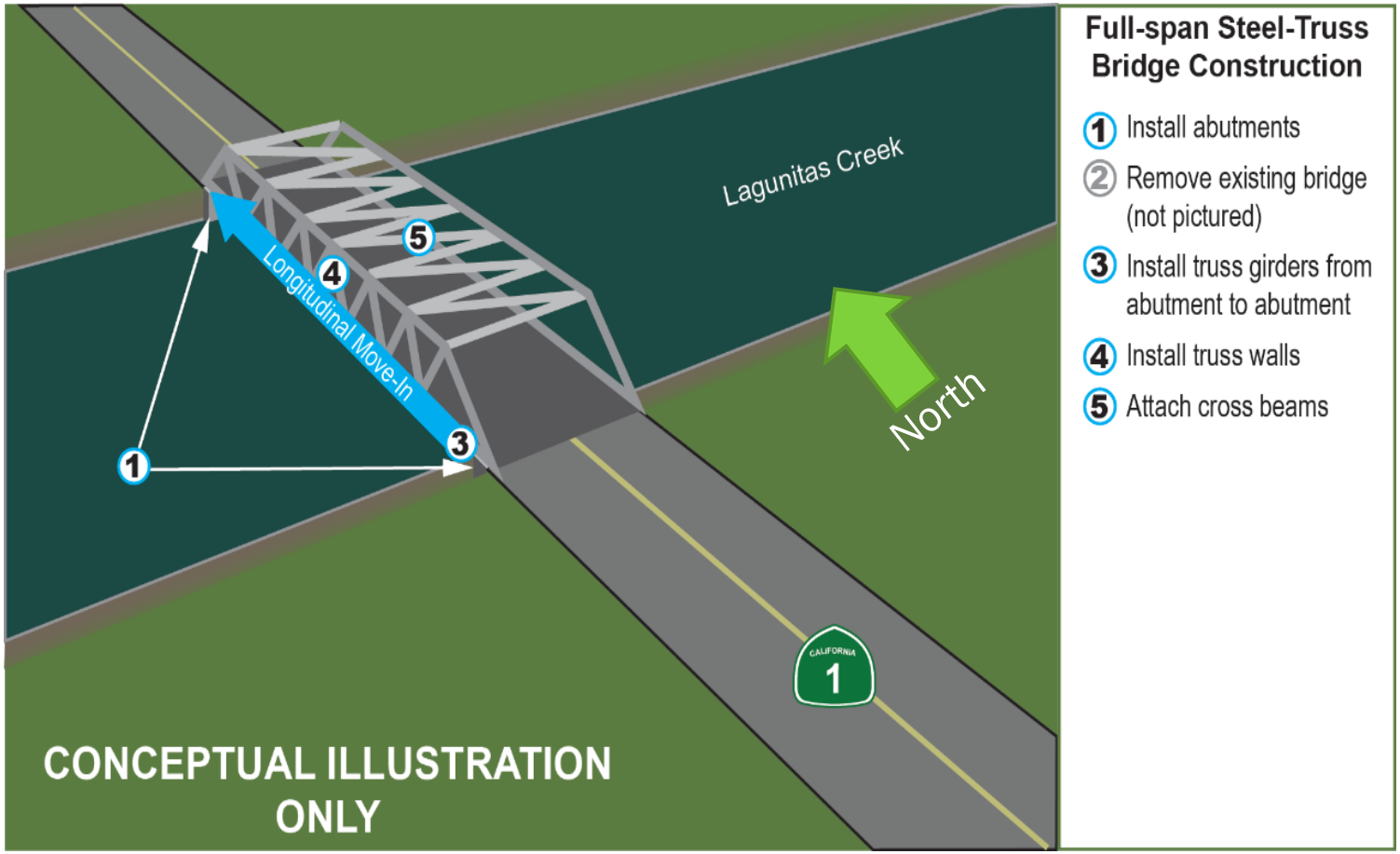
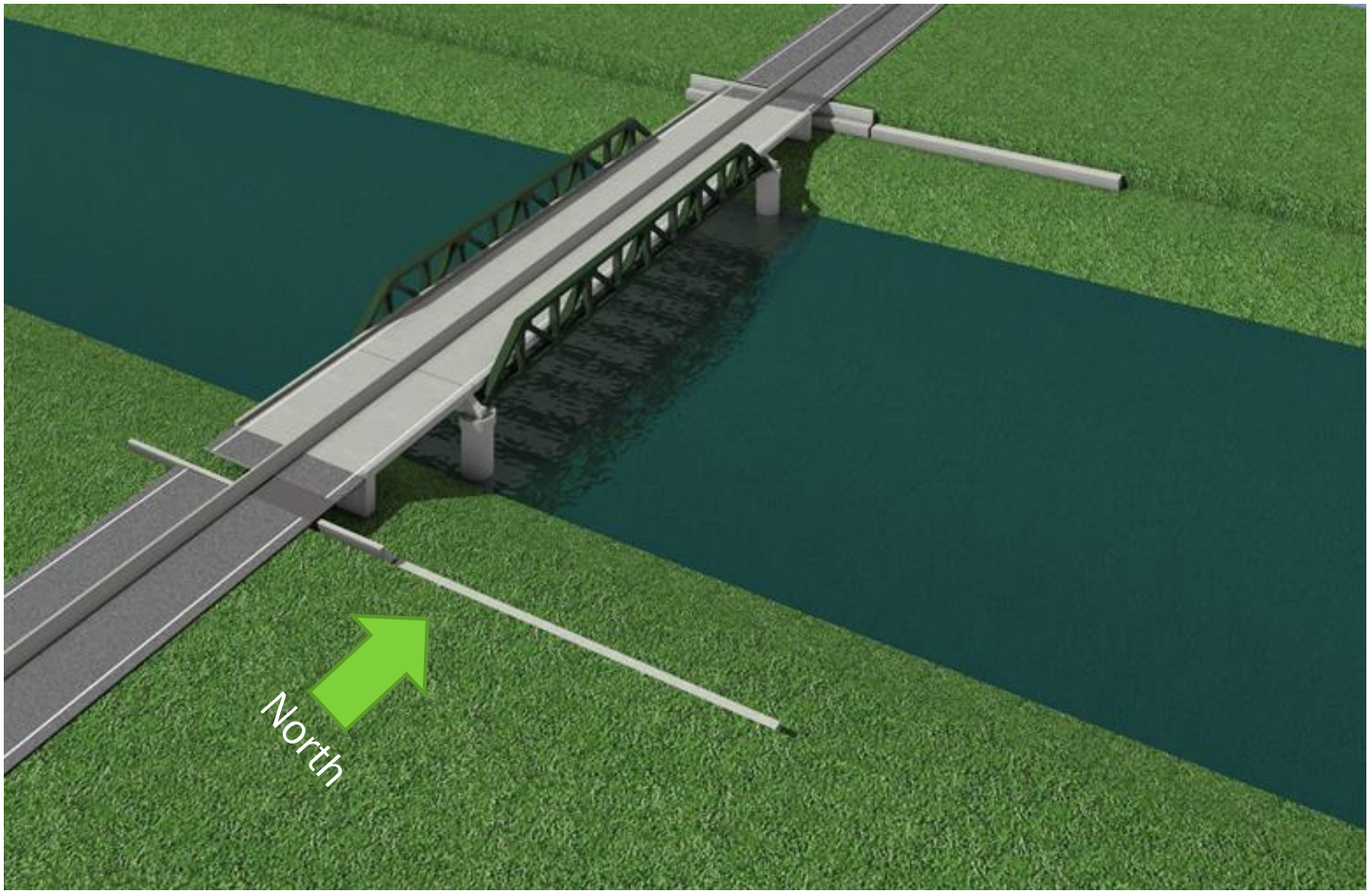
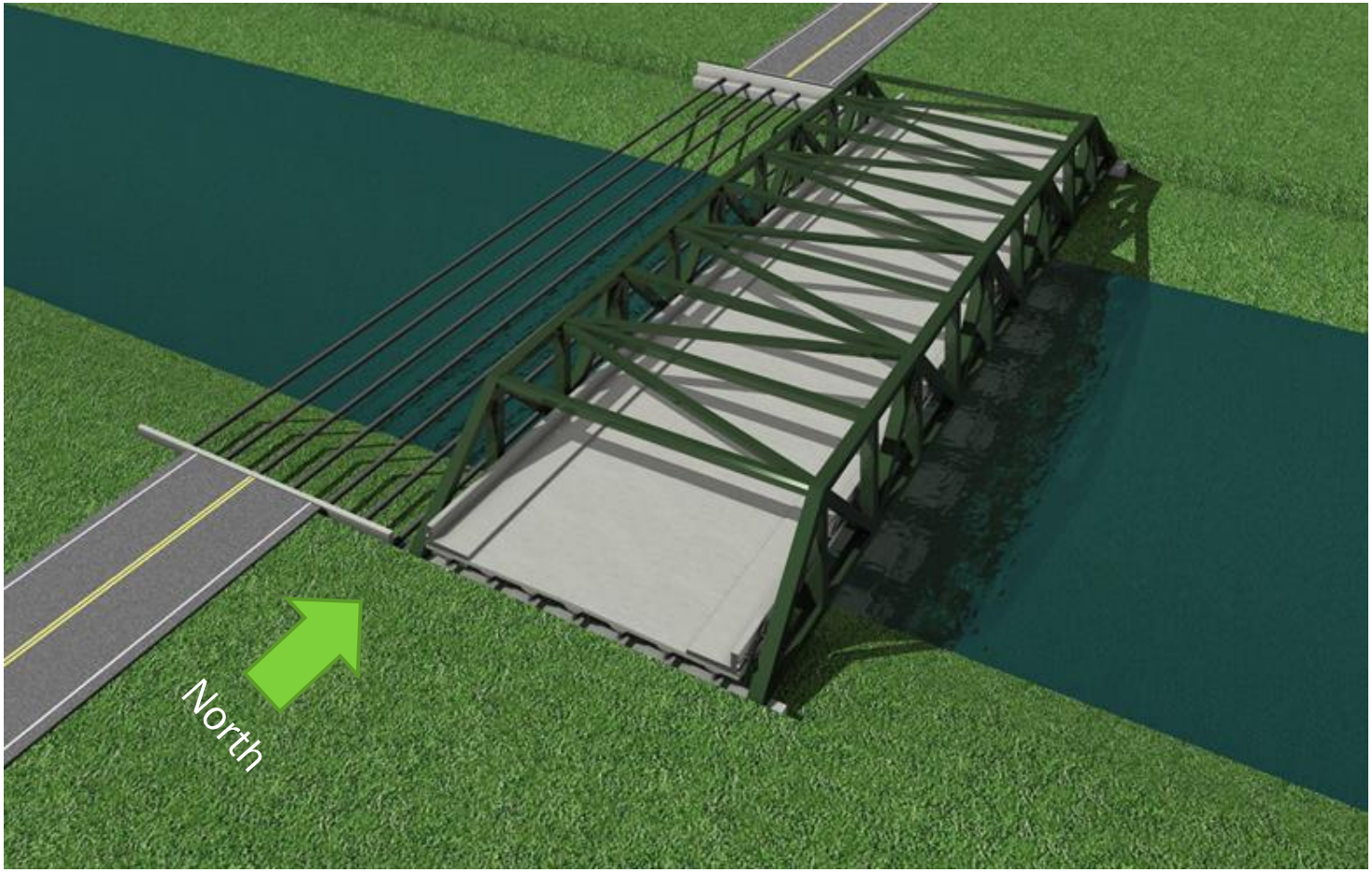


ABC- STEEL TRUSS: FULL-SPAN, TRANSVERSE SLIDE-IN



EXAMPLE ABC – TRANSVERSE SLIDE-IN



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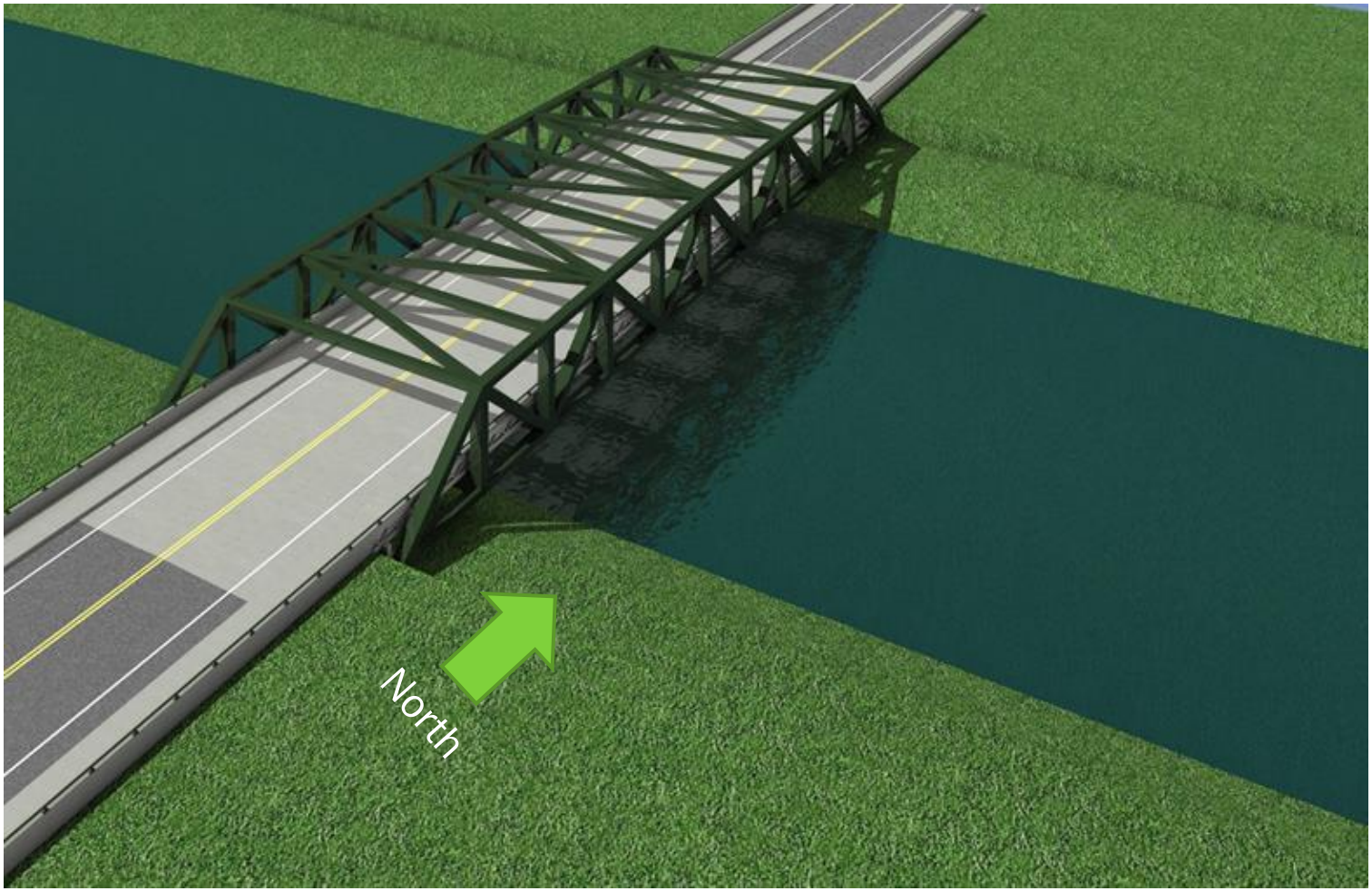
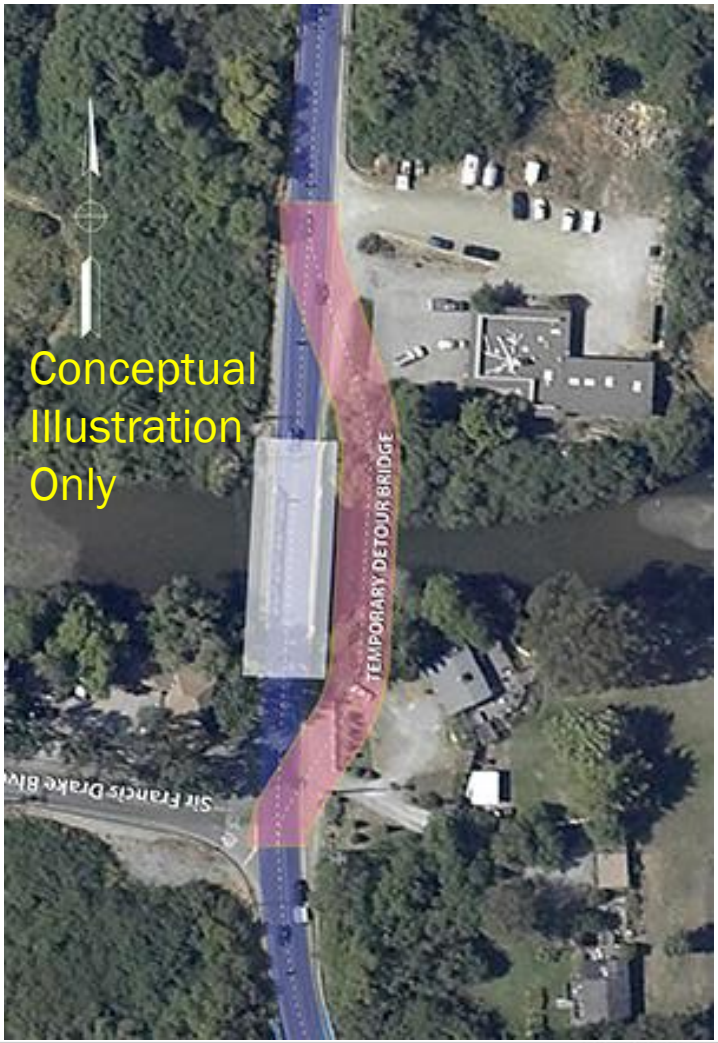


SUSPENSION BRIDGE

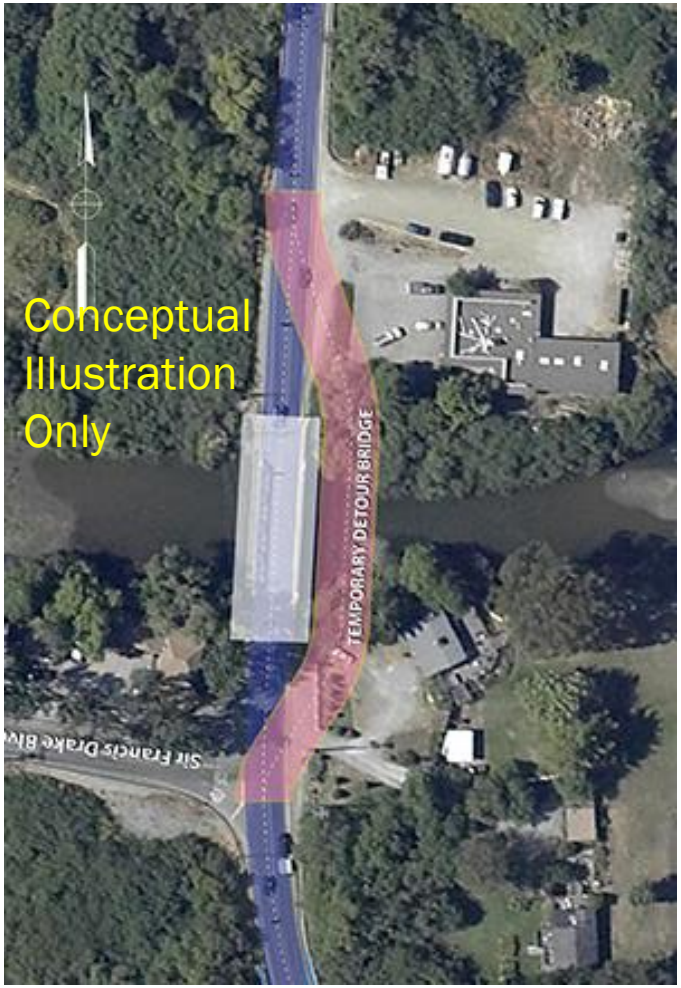
CONVENTIONAL CONSTRUCTION

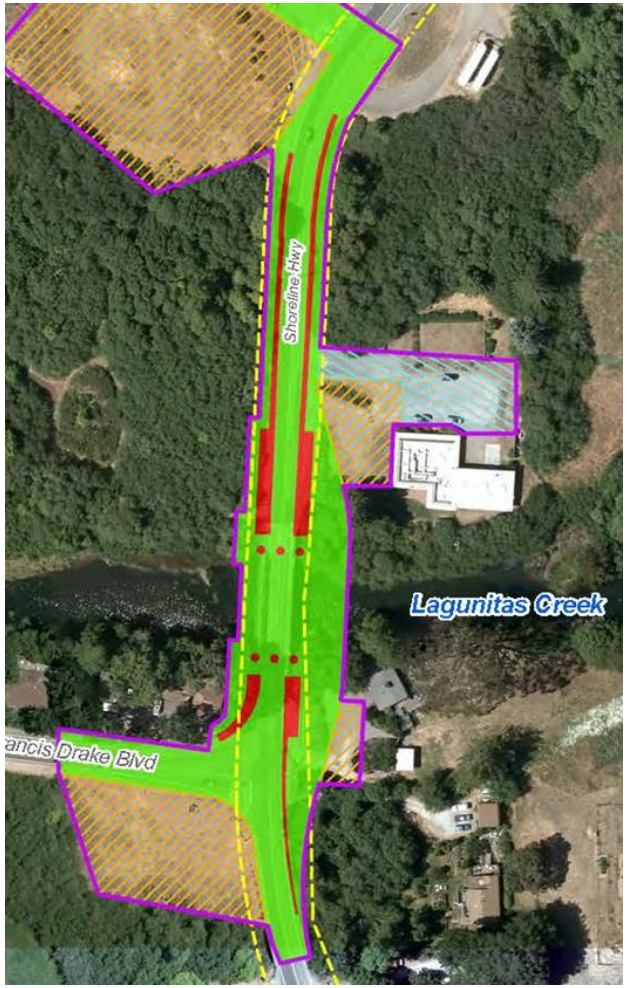


RETROFIT ALTERNATIVE

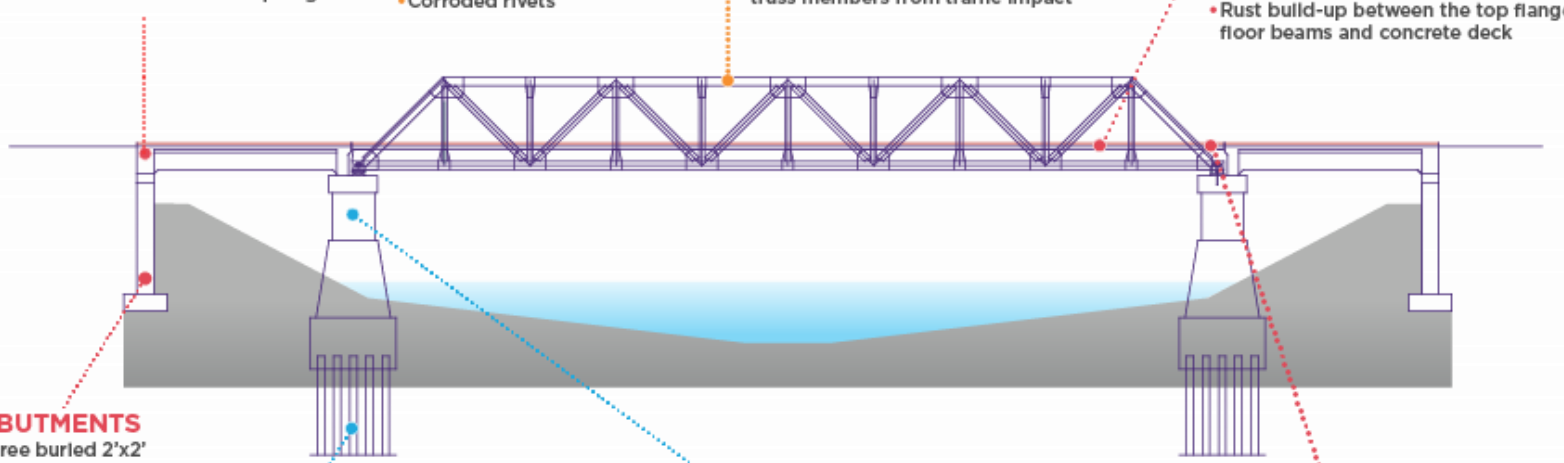
Original truss scale would remain and piers would enlarge

CONVENTIONAL – DETOUR BRIDGE





REVIEW DEFICIENCIES



T-BEAMS SPANS
- Under-reinforced girders
- Outdated railing
- Under-reinforced end diaphragms

STEEL PONY TRUSS
- Observed corrosion between gusset plates, channel flanges, and truss member plates
- Corroded rivets
- Possible steel fatigue damage from years of repetitive traffic loading
- Existing bridge railing does not protect truss members from traffic impact

DECK SLAB
- Cracks in concrete deck may be allowing water through to steel floor beams
- Rust build-up between the top flanges of the floor beams and concrete deck

ABUTMENTS
- Three buried 2'x2' under-reinforced columns supported on 5'x5' spread footings

PIER PILINGS
- Unkown depth, type and load capacity

PIERS
- No steel reinforcement within concrete mass
- Piers' position constrain flow of debris during high flows

ROADWAY
- Inadequate site distance
- Roadway must narrow sharply to meet bridge width
- Inconsistent shoulders between roadway and bridge deck

RETROFIT/ REHABILITATE ALTERNATIVE

1. Build temporary detour bridge
2. Build a support structure around the existing bridge
3. Divert creek waters (requires use of adjacent properties)
4. Remove current worn and cracked concrete deck
5. Remove current truss spans
6. Drive new piles and build reinforced abutments outside of existing abutments/ piers
7. Reassemble and install the refurbished truss spans.
8. Pour thicker concrete deck to meet heavier live-load standards.
9. Adding standard bridge rails will narrow travel lanes

PUBLIC INPUT: KEY THEMES

1. Construction duration: 2 to 3 seasons is too long.
2. Right-of-Way impacts: Minimize project impacts on adjacent property owners and access to/from Pt Reyes Station
3. Minimize environmental impacts to wetland and riparian habitats
4. Aesthetics: Maintain the current character (color and scale)
5. Safety: Pedestrians, bicycles and traffic safety
6. Lagunitas Creek: Maintain/ improve flows and plan for sea level rise

RESULTED IN SIX ALTERNATIVES

1. No Build Alternative

2a. Steel Truss, 3-span, ABC, Longitudinal Move-In

2b. Steel Truss, 3-span, Conventional (with detour bridge)

3a. Concrete bridge, 3-span, ABC, Longitudinal Move-In

4a. Steel Truss, Full-span, ABC, Longitudinal Move-In

4b. Steel Truss, Full-span, ABC, Transverse slide-in place

Only 1 conventional construction alternative (see 2b)

Did not carry forward Suspension Bridge or Retrofit Existing bridge, Conventional (detour bridge)

ENVIRONMENTAL ANALYSES, RESULTS AND MEASURES TO ADDRESS IMPACTS

OVERALL CONSTRUCTION IMPACTS

- Staging areas: property impacts, cleared areas, equipment and material storage (approx. 2.5 – 2.8 acres)
- Noise construction activities
- Dust and equipment emissions
- Traffic Interruptions (one-lane in evenings)
- Traffic detours
- Temporary and permanent impacts to sensitive habitat areas
- Socioeconomic impacts during construction

VISUAL AND AIR QUALITY MEASURES

- **Visual disturbance:**

Staging areas can be screened, but free movements to and from staging areas and site cannot be blocked.

- **Air Quality:**

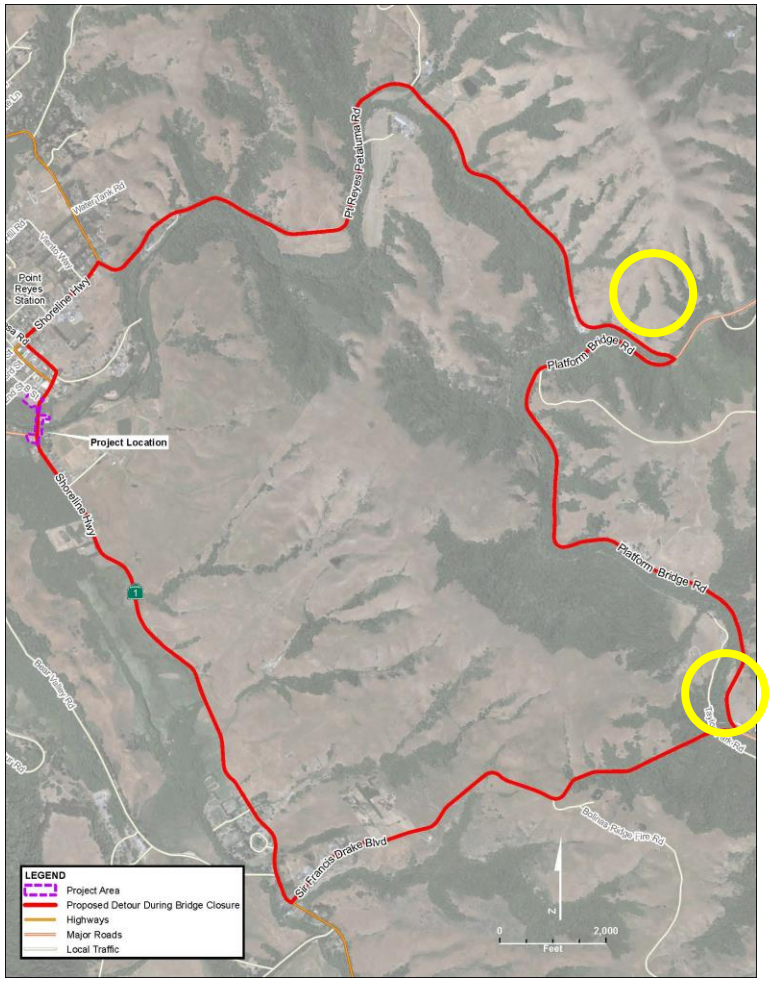
Dust is routinely minimized with watering trucks, keeping equipment clean, having newer equipment which have lower emissions.

NOISE MEASURES

- Noise monitoring
- Plan noisiest activities during day-time hours
- Set back-up warning alarms on low volume
- Noise wall/ blankets (lower noise approx. 15 dBA)
- Temporary relocation would also be considered

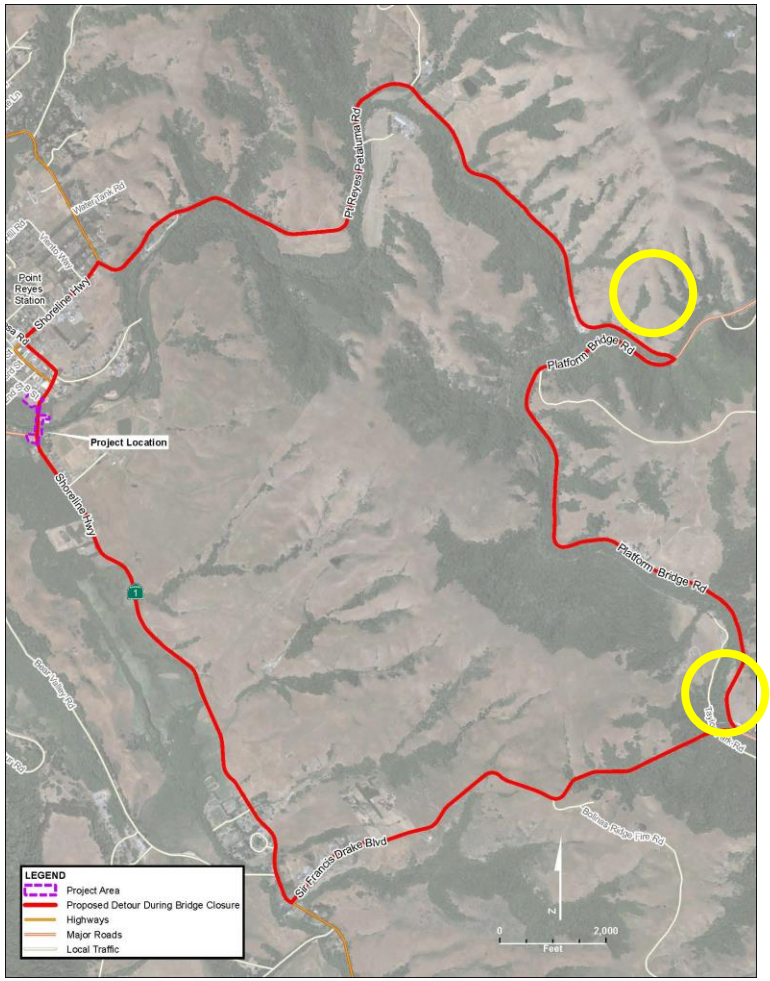
TRAFFIC DETOUR MEASURES

- Strategically schedule of closure period for least disturbance
- Advanced notification to truck dispatches
- Influence deliveries to work-around closure period
- Establish routes that do not deliver north-south
- Signalization and flaggers tight-turning intersections



TRAFFIC DETOUR MEASURES

- Provide businesses links to project updates
- Coordinate with Marin Stage Coach to adjust service
- Provide emergency services on either side of Lagunitas Creek
- Work with school district to provide shuttles as needed



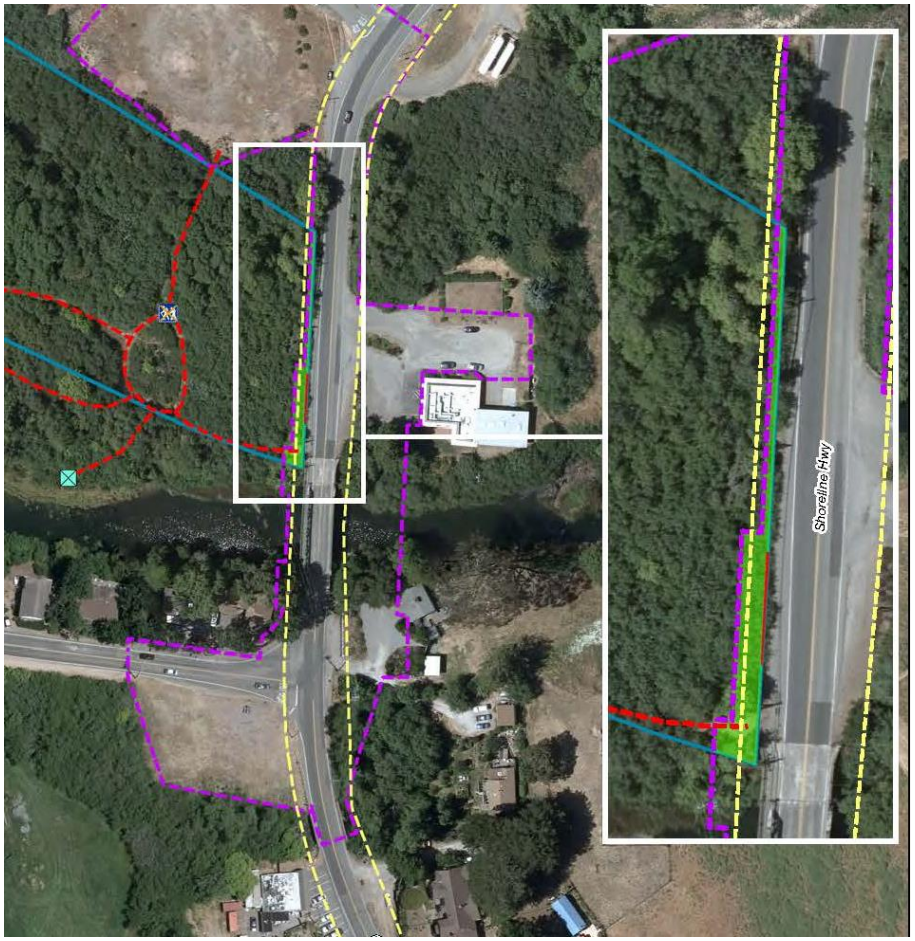
MINOR PERMANENT IMPACTS CONCERN:

- Whitehouse Pool Park
- Sensitive Habitats in and around the bridge

ENVIRONMENTAL CONSIDERATIONS: PARK

Trail/Park Impact: Use of parkland, close trailhead near bridge during construction, limiting canoe access, noise and dust may affect users.

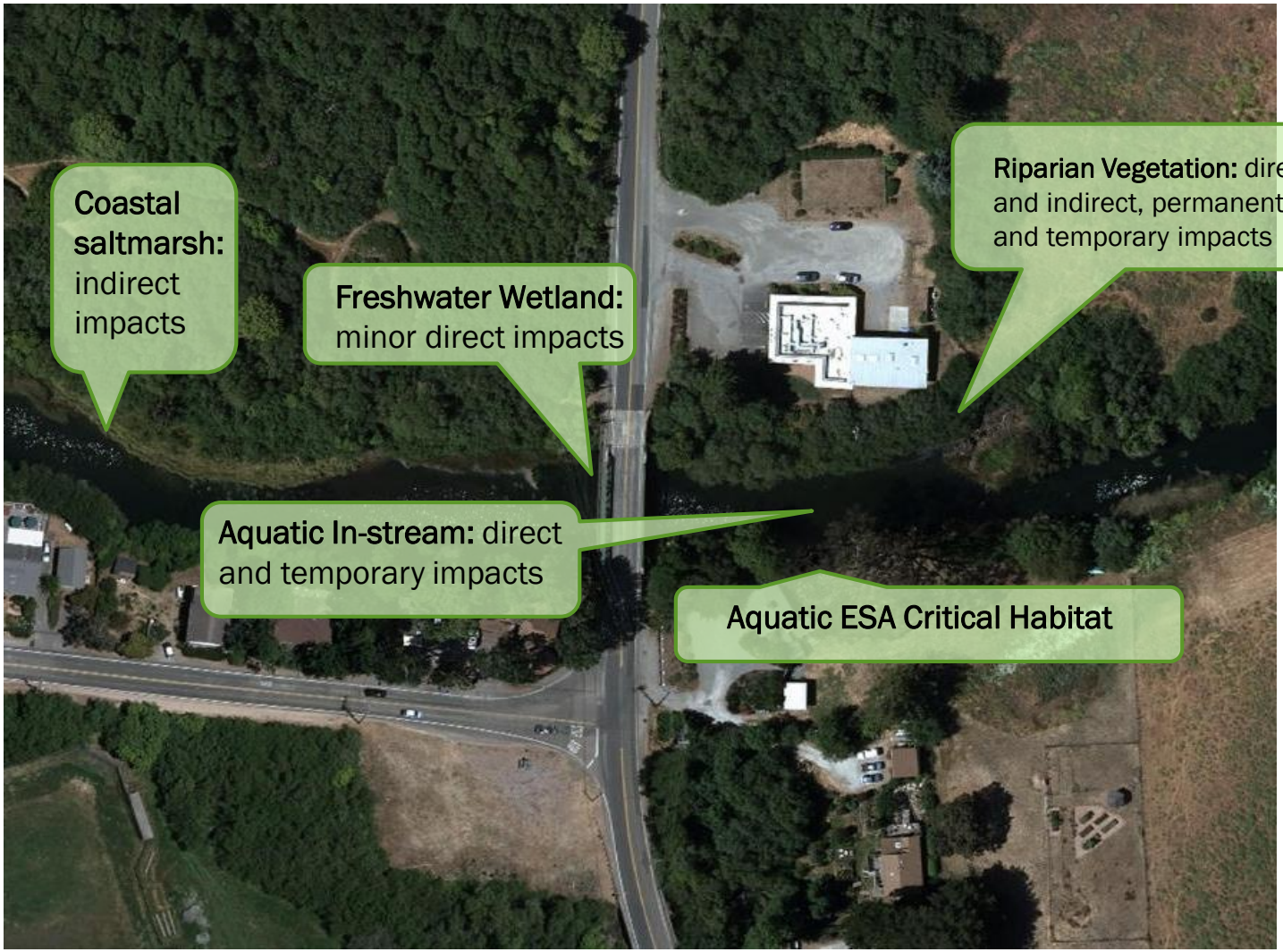
Measures: compensation for use, postings to redirect trail and canoe users, revegetate/ planting, enhanced trailhead post-construction.



THREATENED AND ENDANGERED

- California red-legged frog (Rana draytonii)
- Chinook salmon (Oncorhynchus tshawytscha
- Northern spotted owl (Strix occidentalis caurina)
- Steelhead (Oncorhynchus mykiss)
- California freshwater shrimp (Syncaris pacifica)
- Coho salmon (Oncorhynchus kisutch)
- Myrtle's silverspot butterfly (Speyeria zerene myrtleae)
- Tidewater goby (Eucyclogobius newberryi)

PROTECTED HABITATS IN PROJECT AREA



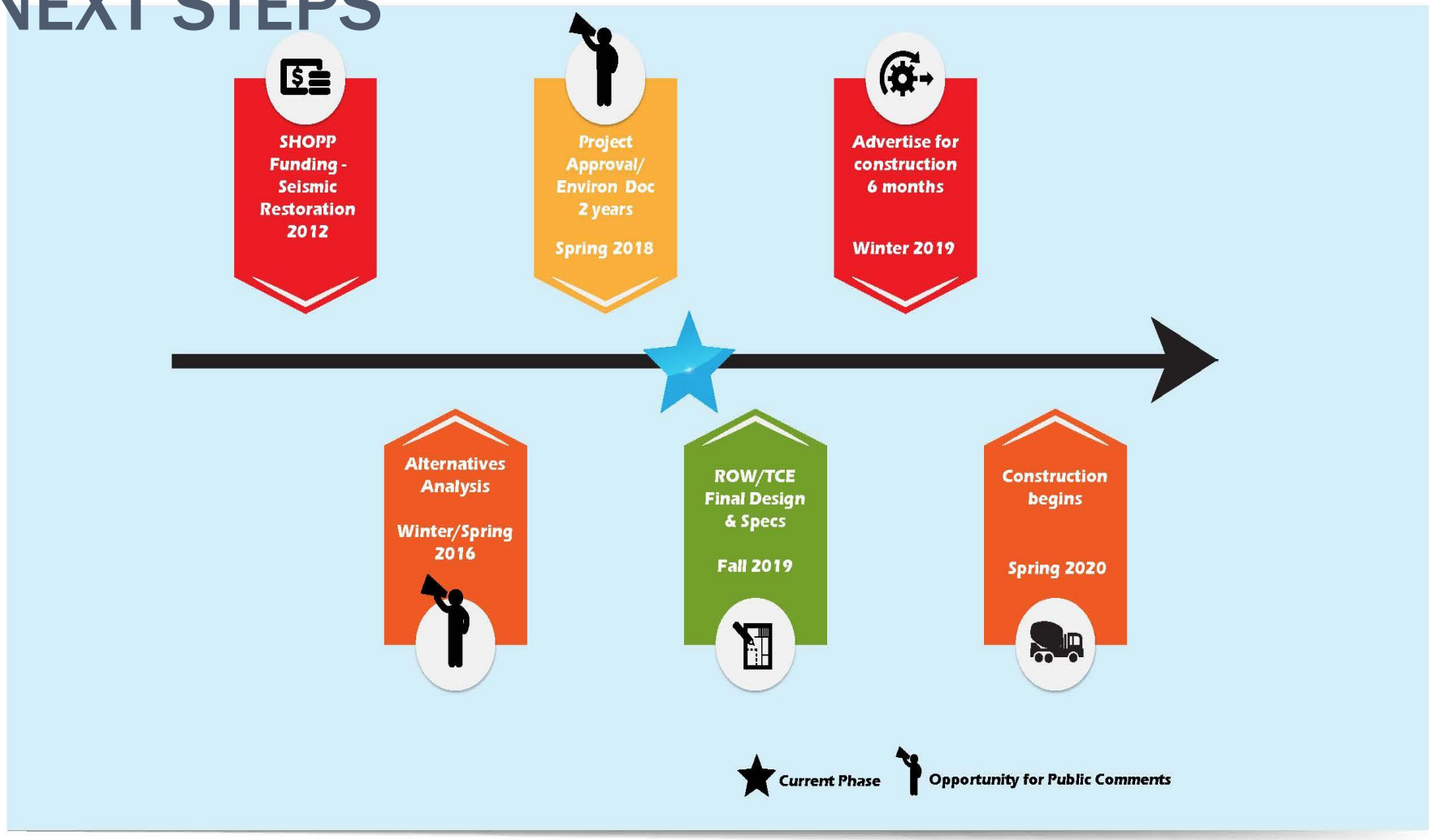
EFFECTS TO SENSITIVE HABITATS

- Direct effects:
  - Potential ‘take’ of individuals, displacement of animals
  - Vegetation removal
  - Removing bank habitat (soils, vegetation and woody debris)
  - Soil erosion = sediment in the creek
- Indirect Effects:
  - Noise
  - Remove food sources

MEASURES TO ADDRESS IMPACTS ON SENSITIVE HABITATS

- **Replanting** – both on and offsite (Advanced mitigation)
- **Stabilizing** creek bank and creating standing water habitat with tree snares (roots and logs)
- Onsite **biological monitor** throughout construction (USFWS, NOAA, CDFG approved biologist)
- **Relocating species** found
- **Limit species** entering construction areas with barriers (netting and cofferdams)
- **Limit noise** to outside of breeding seasons

NEXT STEPS


SHOPP Funding - Seismic Restoration 2012
Project Approval/ Environ Doc 2 years
Spring 2018
Advertise for construction 6 months
Winter 2019
Alternatives Analysis
Winter/Spring 2016
ROW/TCE Final Design & Specs
Fall 2019
Construction begins
Spring 2020
Current Phase
Opportunity for Public Comments

PLEASE REVIEW THE DRAFT EIR/EA AND PROVIDE COMMENTS

- Speakers will be called by the number on their comment card (2 minutes each)
- Otherwise please provide comments by:
  - Filling-in the comment card providing them to sign-in desk, or
  - Mailing (address on the comment card), or
  - Email Comments: lagunitas_bridge@dot.ca.gov
- Download the EIR/EA from project Website: http://www.dot.ca.gov/dist4/lagunitascreekbridge/

THANK YOU FOR LISTENING...

EXTRA SLIDES

HYDRAULICS ANALYSIS: PIERS VS. NO PIERS

- Study reviewed differences between 3-Span bridge type (Steel Truss or Concrete) and the Full-Span Steel Truss.
  - 3-Span bridges would have slightly larger piers in the water and abutments on river banks.
  - Full-span bridge would remove all piers from the water (only abutments on river banks)
- Hydraulics Analysis addressed effects on:
  - Sea Level Rise due to bridge types
  - 100-year flood event
  - Scour of flows on the river bottom

HYDRAULICS ANALYSIS: PIERS VS. NO PIERS

- No noticeable change on Sea Level Rise due to bridge types
- 100-year flood event
  - Normal High Water elevation is approx. 9 feet, 100 Yr. Flood event is approx. 16 to 20 feet water surface elevation)
  - Piers in the water: Minor rise in flood base elevation (under ½ inch), but no change in FEMA flood boundaries
  - No piers in the water: A drop in flood elevation upstream, same downstream (approx. 1- 5 inches)
- Scour analysis
  - Piers in the water:
    - Abutments: Deeper scour depth than existing bridge
    - Piers: Slightly less or same scour depth as existing bridge
  - No Piers in the water:
    - Abutments: Deeper scour depth than existing bridge